Business investment in machinery and equipment in current dollars rose over 11 per cent in 1978. The heavy reliance of this sector on imports partly explains the very rapid 11 percent rise in the implicit price index, leaving investment in machinery and equipment virtually unchanged in real terms.

Exports, imports

Unusual circumstances on a quarter-to-quarter basis, particularly related to strikes and the stockpiling of goods in both Canada and the U.S., obscured the underlying trend in exports and imports; on an annual basis, the 17.4 percent increase in merchandise exports was concentrated in continued healthy American demand for investment-related materials, particularly in construction, as well as paper and automotive products. These three sectors contributed well over $4 billion to the increase in exports. Exports of newsprint, lumber, most other paper products, and aluminum continued their rapid advances of 1977. Machinery and equipment industries recorded export growth of about 30 per cent, while the gain in automotive products was particularly evident for trucks and motor vehicle parts and accessories. The rapid rise of industrial production in the U.S. and the continued decline in the international value of the Canadian dollar also contributed to the rapid export growth.

The 17.3 percent growth in current dollar merchandise imports in 1978 represents some strengthening in real terms after allowing for a 12.7 percent rise in import prices. Imports of goods related to machinery and equipment and motor vehicles including parts accounted for most of the rise in imports. Fabricated metal products, particularly related to iron and steel, also exhibited some strength in 1978, while oil and metal ore imports were high in the latter part of the year. Most of the current dollar increases in food products represented higher prices, especially for fruits, vegetables, and beverages. Geographically, despite the greater devaluation of the Canadian dollar against most European currencies relative to the American dollar, import growth was stronger from European nations than from the U.S., while the obverse was true for exports. These relative movements in trade suggest that real demand forces have had a greater impact on exports and imports than relative price movements, and the full benefits of a lower Canadian dollar in terms of increased competitiveness for exports and import-substitution have not yet been realized.

The non-merchandise trade-account deficit increased in 1978, but the rate of increase has slowed since 1976. A decline in the net travel expenditure abroad, related to the sharply higher cost of travel abroad following the devaluation of the Canadian dollar, and a slowdown in the rate of growth of interest and dividends paid abroad were the major contributing factors to the slightly improved picture for the non-merchandise account.

Total revenue of all levels of government combined (excluding intergovernmental transfers) rose 8.7 per cent in 1978. This slowdown was the result of lower growth rates in personal direct tax collections and indirect tax revenues offsetting higher growth rates in direct corporate tax revenues and government investment income.

With total expenditure by all levels of government increasing 11.6 per cent, the deficit of the government sector increased from $5.4 billion in 1977 to $8.2 billion in 1978.

Riding on air with the Peace River hoverferry

The Peace River winds through Northern Alberta in calm, majestic solitude. Some 650 km north of Edmonton it interrupts Highway 697, down which roll trucks loaded with grain, gravel and cattle. By crossing the river there one avoids a lengthy detour, but no bridge exists. In winter, the traffic simply drives down one bank of the river, crosses on the ice, climbs the other bank, and continues down the highway. For summer crossing, the province provides a ferry, but when the ice is breaking up in spring and forming in autumn the river is impassable by boat.

Last winter, however, an unusual craft, capable of ferrying cars and trucks across broken ice, open water and land, began trial operations. The pressure generated by fans blowing air downwards underneath this hovercraft, though less than that needed to blow up a toy balloon, is enough to lift it and a fully-loaded tractor trailer about half a metre above the river surface. To cross the river, winches on the hovercraft's deck pull it along between two fixed cables slung from bank to bank. Within nine minutes a truck can drive on board, be hauled across the 600-m wide river, and drive onto the other side.

Two-year tests

The prototype was designed by Hoverlift Systems Limited of Calgary. The two-year field test on the Peace is jointly funded by the National Research Council (NRC) and the operator, Alberta Transportation.

"There have been the kind of teething troubles you expect with any prototype," says NRC's Howard Fowler. "Winch problems, spray skirt problems and the like. The river did an unusual thing too – it formed an ice jam so rough and high that the ferry couldn't clear it. A crew of men worked with chain saws in 50 below temperatures to trim the peaks down. But now most of the snags have been overcome, and the ferry is carrying traffic."

Because they consume fuel just to hover, air-cushion vehicles obviously cost more than conventional vehicles to operate. The ferry will be in continuous use for two years, except when the natural ice bridge has formed or during the worst of break-up, when house-sized lumps of ice float downstream. At the end of this test the results will be published as a study on the economics of a hovercraft ferry.

Many uses

Air-cushion technology has many possible applications. "A hovercraft ferry has been ordered for use in British Columbia," says Ray Dyke of Hoverlift Systems, "and the Alberta government has expressed interest in using another four. But we've also built an air-cushion platform for the St. Lawrence Seaway Authority – it doubles the icebreaking capacity of the ship to whose bow it is attached – as well as designed a large icebreaker for the Canadian Coast Guard which uses air-cushion technology. You can use air-cushion platforms to haul heavy loads over many kinds of rough terrain – getting fire-fighting equipment out to a remote pipeline, for instance. We're receiving a lot of enquiries, particularly from oil and logging companies."

(By Séan McCutcheon for Science Dimension, *Vol. 10, No. 4, 1978.)*